

The Lion's Share: Evidence from Federal Contracts on the Value of Political Connections*

Şenay Ağca

George Washington University

Deniz Igan

International Monetary Fund

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Abstract

We examine how political connections affect federal contracts awarded to corporations. As an exogenous shock, we use the September 11 terrorist attack and the subsequent war in Afghanistan, which increased defense spending. We find that firms that lobby and those with politically connected boards get significantly larger defense contracts after this event. The size of the contracts increase by almost twice after the event for connected firms, and less than 10 percent for firms without these connections. We do not find a similar effect for federal contracts awarded by other US agencies. Overall, the findings show that political connections are valuable in securing the lion's share when additional funding becomes available.

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* Şenay Ağca, email: sagca@gwu.edu; Deniz Igan, email: digan@imf.org. We are grateful to Stijn Claessens, Prachi Mishra, Itay Goldstein, Thomas Stratmann and seminar participants at the International Monetary Fund for useful comments and to Tarek Karam, Jeremy Mcnees, Mengyun Miao, and Asli Togan-Egrican for excellent research assistance.

I. INTRODUCTION

The interaction between corporations and politics is a core issue in political science and economics. While political connections are considered to be valuable for corporations along many dimensions, there are challenges in identifying and quantifying the value of these connections. The dynamics between politics and corporations is particularly relevant in areas where there is high government and private sector interdependence as in federal procurement contracts.

The U.S. federal government is the largest single purchaser of goods and services. The procurement process (how government funds are spent) is designed to ensure competition and transparency, but it does not operate in a vacuum from the rest of the government-private sector relations. Firms participating in bids often engage in politically targeted activities and employ former government employees and public officials with knowledge of the procedures.

In this paper, we look at federal contracts awarded to corporations in relation to their political activities and connections. We exploit an exogenous shock on federal procurement contracts to isolate the value of political activities and connections. Specifically, we use September 2001 attacks and the Afghan war immediately following this event as an unexpected shock that increased defense spending. Since there is no similar event for other contracts awarded by the federal government during this time period, we examine how political connections affect defense contracts received by corporations following the shock in comparison to other contracts. This framework not only helps us to find out whether corporations benefit from political activities and connections or not, but also allows us to quantify their value. We focus on lobbying, campaign contributions, and board connections as alternative means of exerting political influence.

We find that firms that lobby and that have connected boards get larger defense contracts following the aforementioned exogenous shock. The size of defense contracts obtained after the event by corporations with lobbying activities and for firms with board connections to the U.S. Department of Defense is almost twice as large as that is observed before the event. For firms that do not lobby or that are not connected, this increase is less than 10 percent. Evidence of an increased size in defense contracts after the event for firms with campaign contributions also exists although it is not as robust. These findings indicate that political activities and connections generate significant returns for corporations.

One of the main arguments related to politically targeted spending such as lobbying and campaign contributions is that they are alternative ways of getting access to policymakers.¹ Corporations can also gain access by employing board members that are

¹ See Grossman and Helpman (2001), Stratmann (2005) and Leech (2010) for a survey of literature on lobbying and campaign contributions. A non-exhaustive list of papers include Crawford and Sobel (1982), Hall and Wayman (1990), Stratmann (1991, 1992), Austen-Smith (1993, 1995), Hojnacki and Kimball (1998), Kroszner (continued...)

connected to legislators or agencies. These connections can be useful in solely transmitting information, or can further help in influencing the outcome of the procurement process. For example, in line with the access argument, Bertrand, Bombardini, and Trebbi (2014) find that lobbyists change issues they work on as their related congressman change committees. They use campaign contributions of lobbyists as an instrument in determining connections to politicians. Vidal, Draca, and Rosen (2012) find that lobbyists lose significant revenue when their related Senator leaves office. Krozsner and Stratman (2005) find that campaign contributions to politicians increase with seniority in a committee.

Indeed, there is a growing literature showing that political connections are valuable for corporations such as Fisman (2001), Johnson and Mitton (2003), Faccio (2006), Goldman, Rocholl and So (2009), Cooper, Gulen and Ovtchinnikov (2010) and Ovtchinnikov and Pantaleoni (2012), Fisman et.al. (2012) and Acemoglu et.al. (2014). Pertaining to specific economics favors granted by government, Khwaja and Mian (2005) and Claessens, Feijen, and Laeven (2008) find that firms connected to government through campaign contributions or board connections get preferential access to external financing. Faccio, Masulis, and McConnell (2006), Igan, Mishra, and Tressel (2012), Dunchin and Sosursuya (2012), and Adelino and Dinc (2014) show that political connections through board members, lobbying or campaign contributions increase likelihood of firms to be bailed out.

In regard to government contracts, Goldman, Rocholl, and So (2013) and Tahoun (2014) find that companies connected to the political party in power through board members or through campaign contributions get larger procurement contracts. Cohen, Coval and Malloy (2014) look at US Senator ascension to powerful congressional committee positions and find that firms from the ascending US senator's state increase sales to government by more than 20 percent following this position change. They also find that the results are mainly driven from position changes in the Armed Forces Committee. For a specific example regarding procurement contracts, Hasen (2012) and the references therein look at lobbying efforts of GE, Rolls Royce and Pratt & Whitney regarding the Pentagon's purchase of an alternative engine for F-35 Joint Striker Fighter for which the total expected cost is around \$100 billion. They indicate that Pentagon announced that alternative engine is no longer necessary, after which these firms increased lobbying efforts dramatically, and there were disagreements in the Senate and the House about its funding. Overall, the evidence points to high stakes from government contracting and is consistent with our finding that political connections to government are useful in securing larger contracts.

Our paper adds to the debate on political connections on several fronts. First, by exploiting an exogenous shock on federal procurement contracts, we show that political connections generate significant returns for corporations. One of the main concerns in examining political activities and connections is endogeneity between these political means

and Stratmann (1998), Ansolabehere, Figueiredo and Snyder (2003), Figueiredo and Silverman (2006), and Hall and Deardorff (2006) .

and the outcome of interest. Our paper overcomes this issue by focusing on an unexpected shock that affected defense contracts but not other contracts. Since the event is exogenous, political activities and connections are not driven by the expectation of the event, or alternatively, political activities and connections did not lead to the occurrence of the event. Hence, causality runs from political activities and connections to the amount of defense contracts obtained following the event. Second, due to the nature of the study, we are able to put a value on these political activities and connections. Lastly, we consider three important channels of political activities and connections—lobbying, campaign contributions, and board connections, within the same context. Thus, we can examine the relative value of these channels for a corporation and also see whether they are complements or substitutes.

The rest of the paper is organized as follows. Section II explains the data and the methodology, Section III presents the empirical findings. Section IV concludes.

II. DATA AND METHODOLOGY

A. Data

We combine four datasets to examine the relation between political activities and connections, and procurement contracts granted by federal government. These data are on lobbying expenditures, campaign contributions, corporate board of directors, and federal procurement contracts. Since none of these datasets share a common identifier, these datasets are merged with an initial matching algorithm followed by manual screening and manual matching. We first go over the budget process and the timeline of our analyses and then explain the data used in the study in further detail.

Budget Process and the Analysis Period Timeline

Most agencies submit their budget requests to the Office of Management and Budget (OMB) during the period between September and December. By the end of December, decisions involving the President and other White House officials are completed. The final document is the President's Budget, which is transmitted to Congress generally in the first Monday of February. Committees in both the House and the Senate hold hearings and review budget justification. Each chamber then produces its own budget bill. A budget resolution process aims to remove the conflicts between the two bills and send a single bill to the President for approval or veto. The process is expected to be completed by mid-April, leaving appropriations committees enough time to complete the appropriations bills by the beginning of fiscal year—October 1st. If the needed funds are not appropriated, continuing resolutions need to be approved to avoid a partial government shutdown.

The events we focus on are September 11, 2001 terrorist attacks and the onset of the war in Afghanistan on October 7, 2001. The agencies had put in their requests for fiscal year 2002 (that covered from October 1, 2001 through September 30, 2002) in the fall of 2000 and included in the President's budget by the end of December 2000. In this regard, during the

period October 2001–September 2002, budgets were not reflecting the consequences of the events of September 11 and the Afghan war. We consider this period as the event period.

During the period between September 2001 and December 2001, new budget requests were transmitted to the OMB, which became part of the approved budget for fiscal year 2003 (that covered from October 1, 2002 through September 30, 2003). We consider this period as post-event period, where the consequences of September 11 attacks and the Afghan war in October 2001 would be incorporated in the funding request of the U.S. Department of Defense. Since there was no similar major event that concerns other agencies for this period, there should not be a systematic change in the funding requested by other agencies in this post-event period.

For the pre-event period, we look at October 2000–September 2001. Budget requests for this period were submitted between September 1999 and December 1999. Both during the fall of 1999 and during the pre-event period, there were no major events that would have affected agencies' funding requests systematically. In this regard, we consider this period as our benchmark period against which we compare contracts awarded in the post-event period.

The timeline for the analysis period is summarized in the chart below.

Pre-event period	Event period	Post-event period
• <i>Budget request:</i> September 1999–December 1999 • <i>Fiscal year for approved funding:</i> October 2000–September 2001	• <i>Budget request:</i> September 2000–December 2000 • <i>Fiscal year for approved funding:</i> October 2001–September 2002	• <i>Budget request:</i> September 2001–December 2001 • <i>Fiscal year for approved funding:</i> October 2002–September 2003

Federal Procurement Contracts

Federal procurement data is obtained from the Center for Effective Government (www.fedspending.gov). We consider contracts given by the U.S. Department of Defense as defense contracts. For other contracts, we include contracts given by Agriculture, Commerce, Energy, Health, Interior, Justice, Transportation, Treasury and Veteran Affairs departments as well as NASA and General Services Administration. We do not include Department of Homeland Security and Department of State in our data since spending in these departments is likely to be correlated with the events of September 11, 2001 and the following Afghan war.

In our dataset, we include only corporations. We remove all other institutions and agencies such as universities and state governments. We apply a threshold to exclude federal contracts that are less than \$200,000. For each corporation that is awarded with defense contracts, we calculate the total amount of defense contracts obtained over the pre-event period (October 2000–September 2001), event period (October 2001–September 2002) and post-event period (October 2002–September 2003). We refer to these periods as 2001, 2002, and 2003 fiscal years, or pre-event, event, and post-event periods, respectively. For each corporation that is awarded with other contracts, we calculate the total amount of contracts

procured from all of the other agencies considered in our study for pre-event, event, and post event periods. If a company has been awarded both defense and other contracts, we do not include these companies in the other contracts sample so as not to confound the results. In our analysis, defense contracts are the sample that is treated by the event and other contracts are the comparison sample, which is not affected from a major event during the analysis period.

Lobbying

For a given fiscal year, budget requests are submitted by the fall of the previous year. Hence, we assume that lobbying activity affects, if at all, federal contracts mainly with lags. In this regard, for the corporations in our sample, we calculate the lagged value of total lobbying amounts for each period of interest. For example, for the event period October 2001–September 2002, the budget was requested in the fall of 2000 and thus September 11 attacks were not yet reflected in the requested budget. For the post-event period, October 2002–September 2003, on the other hand, the budget was requested during the period September 2001–December 2001, right after the events of September 11 and the onset of the Afghan war. So, these events will be reflected in the lobbying activities carried out for this period. Following this logic, we calculate the lagged lobbying amounts for pre-event, event, and post event periods. Accordingly, for the post-event period, we calculate total lobbying spending over the year 2001, which covers the period January 2001–December 2001 and, hence, includes the events of September 11 and the Afghan war. Similarly, for the pre-event and event periods, we use total lobbying spending in 1999 and in 2000, respectively.

We retrieve lobbying data from the Lobbying Disclosure Act Database provided by the United States Senate Office of Public Records. Lobbying data is reported semiannually from 1999 to 2009 and quarterly since 2009. For our analysis period, lobbying data is available at semiannual frequency. We first match lobbying data with federal contracts data using a matching algorithm followed by manual screening and manual matching. Then, for each firm in the matched sample, we calculate total lobbying spending over a year for each corporation as described above.

Campaign Contributions

Campaign contribution data is collected from the Federal Election Commission Disclosure database. Federal Election Commission provides detailed information on campaign contributions for each election cycle since 1996. For our purposes, we consider PAC contributions given by corporations to winning candidates. We mainly focus on PAC contributions as individual contributions are more likely to be driven by ideology rather than the purpose of establishing connections. We look at winning candidates since they will be the ones in power when federal contracts are awarded. Indeed, Goldman, Rocholl, and So (2013) find that federal procurement contracts increase for those companies that have connections with the winning party.

For each corporation that has been awarded with federal contracts, we match firm names with those in the campaign contribution dataset. We calculate campaign contributions in two alternative ways: according to the election cycle and according to the event window. We determine lagged campaign contributions in the same manner as we do for lobbying.

For the contracts awarded in the post-event period, we consider total PAC contributions to winning parties in the 2000 elections. The budget for the contracts awarded over the post-event period (October 2002–September 2003) are requested between September 2001 and December 2001, right following September 11, 2001 attacks and the start of the Afghan war on October 7, 2001. This period falls after 2000 elections and before 2002 elections, and hence we use total campaign contributions for the 2000 election cycle for this period. For the event-period (October 2001–September 2002), budget requests are submitted between September 2000 and December 2000, which is around the 2000 elections. Therefore, we use campaign contributions for the 2000 election cycle for the event period as well. For the pre-event period (October 2000–September 2001 contracts), contract requests are submitted by December 1999. So, we consider campaign contributions for the 1998 election cycle for this period.

As an alternative approach, we look at the exact dates of campaign contributions and use these dates in determining lagged campaign contributions. For example, for the post-event contract period October 2002–September 2003, we calculate campaign contributions from January 2001 to December 2001, which corresponds to the time frame that includes the budget request submitted for the 2003 fiscal year. We do similar calculations for the event and pre-event periods as well. The results are comparable using this alternative approach.

Board of Directors

For corporations that receive defense contracts, we also look at the board connections. To determine board connections, we look at the employment history of board of directors and the connections of directors to other directors through other boards. We use Boardex dataset to determine these connections. After carrying out matches between company names in federal contracts data and the Boardex dataset as in lobbying and campaign contributions, we identify companies with board of directors that have employment history in the federal armed forces (Army, Navy, Marine Corps, Air Force, and Coast Guard). We also determine the board of directors that have overlapped on other boards with directors that have worked in the armed forces. For this set of results, we look only at firms that are awarded with defense contracts since board connections to defense should not have a systematic relevance for contracts obtained from other agencies. For these board connections, we use an indicator that takes a value of one if the company has a board member that had employment history in defense or has overlapped in a board with a director who had worked in defense.

Descriptive Statistics

Table 1 reports descriptive statistics for our sample. Our sample period runs from October 1, 2000 to September 30, 2003, which includes pre-event, event, and post-event periods. There are 87,194 observations, where 31,954 observations are defense contracts and the remaining are contracts awarded by other agencies. The average contract size is \$75 million for the overall sample, \$155 million for defense contract sample, and \$29 million for the other contract sample. Similar disparity between defense and other contracts is observed in medians as well. The median contract size is \$630,000, \$1.3 million, and \$500,000 for overall sample, defense contracts sample, and other contracts sample, respectively. These statistics indicate that companies get relatively larger defense procurement contracts than the contracts granted by other agencies.

When we look at political connections, 4 percent of firms getting defense contracts are involved in lobbying activities, whereas this amount is 2 percent for other contracts. Similarly, for campaign contributions, these figures are 2 percent and 1 percent for firms getting defense and other contracts, respectively. If we look at dollar amounts, lobbying expenses and campaign contribution amounts of defense contracting firms are larger than those getting other contracts. In regards to board connections, less than 1 percent of the defense contracting firm sample has board connections to defense through employment or through connection to other directors that worked in defense.

Table 1 also reports mean statistics for pre-event, event, and post-event. For the defense contract sample, average post-event contract size is larger than those observed in pre-event and event periods, whereas these numbers are comparable across periods for the other contracts sample. Lobbying expenses and campaign contributions seem to be increasing throughout the years for both defense contract and other contract firms. Board connections are stable over the sample period for defense firms.

These univariate statistics give a preliminary indication that defense contract sizes increased after the exogenous shock of September 11 attacks and the following Afghan war whereas no similar increase is observed for other contracts. Regarding political connections, average lobbying expense and campaign contribution seem to be increasing throughout the years across the board in the sample.

B. Methodology

We examine if political connections generate value for corporations by exploiting an exogenous shock on federal procurement contracts. The exogenous shock we focus, September 11 attacks and the Afghan war that started shortly after, has an effect on defense spending but should not have a systematic effect on the spending by other federal government agencies considered in this study. Within this context, we focus on lobbying, campaign contributions, and board connections as political connections.

There are two treatment effects in our study. The first one is the exogenous shock that has an impact on defense contracts but not on other contracts. The second one is political

connections, which has an effect on the contracts that are obtained by firms that are connected to the government through lobbying, campaign contributions, and board connections but not on those that are not politically connected.

We first examine mean differences for federal contracts before and after the event. We expect an increase after the shock for defense contracts but not for other contracts. We also check if there is any significant change in the mean values of political connections between post-event and pre-event period. Next, we look at mean differences in contracts obtained by politically connected firms and those obtained by not connected firms. We carry out this analysis for defense contract sample and other contracts sample separately. If political connections have an impact on the contracts awarded following an increase in the amount of funding for defense, then we should see a change between post- and pre-event values of defense contracts of connected firms in relation to the defense contracts of non-connected firms, but we should not observe similar effects for other contracts.

Following these inspections of the data dynamics, we carry out estimations based on difference-in-difference (DD) and difference-in-difference-in-difference (DDD) models. In DD estimations, we compare the contracts obtained by politically connected firms with those obtained by non-connected firms after the event that increased the size of defense contracts. We do these estimations separately for defense contract sample and with other contract sample. Other contracts constitute the placebo sample whereas defense contracts are the treated sample. Other contracts should not be systematically affected from the September 11 attacks and the Afghan war, whereas there is an increase in defense spending following these events. Thus, we should be observing a significant relation for the defense contracts after the event but not for other contracts. Formally, the DD specification is:

$$Contract_{it} = \beta_1 Connection_{it} + \beta_2 Connection_{it} * Postevent_t + n_i + y_t + \varepsilon_{it} \quad (1)$$

In equation (1), *Contract* is the natural logarithm of federal procurement contract amounts; *Connection* is a political connection variable—lobbying, campaign contribution, or board connection, depending on the specification—; *Postevent* is an indicator variable that takes the value of one for the contracts awarded following September 11 attacks and is zero otherwise; *n* is firm fixed effects and *y* is time fixed effects. Sample period is from October 2000 to September 2003, where October 2000–September 2001 is pre-event; October 2001–September 2002 is event, and October 2002–September 2003 is post-event period. For lobbying, we use two measures: (i) an indicator variable that takes the value of one if a firm has lobbying activities, and (ii) the natural logarithm of total lagged lobbying amount. Similarly for campaign contributions, we use both the indicator and the natural logarithm of lagged campaign contribution amounts. For board connections, we use an indicator variable that takes the value of one if the board of the firm is connected to defense.

Next, we pool the defense and other contract sample together and run DDD estimations. In these estimations, we look at the value of federal contracts obtained by

politically connected firms in relation to non-connected firms after the event for defense contracts in relation to other contracts. The formal specification for DDD estimation is:

$$\begin{aligned} \text{Contract}_{it} = & \beta_1 \text{Connection}_{it} + \beta_2 \text{Defense}_{it} + \beta_3 \text{Connection}_{it} * \text{Postevent}_t + \\ & \beta_4 \text{Defense}_{it} * \text{Postevent}_t + \beta_5 \text{Defense}_{it} * \text{Connection}_{it} + \\ & \beta_6 \text{Defense}_{it} * \text{Connection}_{it} * \text{Postevent}_t + n_i + y_t + \varepsilon_{it} \end{aligned} \quad (2)$$

In these DDD estimations, there are two treatments. Defense contracts are the treated sample and other contracts are the comparison sample. In addition, politically connected firms are the treated sample and the ones without connections are the comparison sample as we are interested in observing how political connections affect contracts after the event. In this regard, defense contracts of politically connected firms are treated twice, by the exogenous shock as well as the political connections.

III. FEDERAL CONTRACTS AND POLITICAL CONNECTIONS

Figure 1 shows defense procurement contracts along our event timeline. Total dollar amount of defense procurement contracts increased from \$170 billion in fiscal year 2002 to \$212 billion in fiscal year 2003. This increase corresponds to a change of 24 percent in total defense procurement funding within a year, which is a sharp jump. Also the percentage of total procurement funding allocated to defense contracts jumped from 65 percent in fiscal years 2001 and 2002 to 67 percent in fiscal year 2003. Overall, Figure 1 shows that following the events of September 11 and the Afghan war, federal funding allocated to defense contracts increased sharply due to these unexpected events.

We next look at mean difference tests for the natural logarithm of the amount of federal contracts obtained by corporations between post-event and pre-event periods and between defense contracts and other contracts. Post-event corresponds to fiscal year 2003 and pre-event corresponds to fiscal year 2001. The results are in Table 2, Panel A. Average size of defense contracts are significantly larger after the event, whereas there is no significant change for other contracts. Defense contracts are larger than other contracts both in pre-event and post-event period. Difference-in-difference test result shows that the average size of defense contracts is significantly larger than that of other contracts following the exogenous shock.

Overall, these results indicate that defense contracts increased significantly following the unexpected events of September 11 and the Afghan war. Also, as expected, there is no significant effect of this exogenous shock on other federal procurement contracts.

Next, we look at the relation between political connections and federal contracts, by focusing on lobbying, campaign contributions, and board connections.

A. Lobbying

We start our analysis by looking at the relation between lobbying and federal contracts by exploiting the exogenous shock that affected defense contracts. For lobbying amounts, we use natural logarithm of lagged lobbying. Otherwise, we use indicators on whether a company had lobbying spending in the past or not.

We first look at lobbying activities around event time by comparing average lobbying amount spent by corporations in the post-event period compared to the pre-event period as well as between defense and other contracts. The results are in Table 2, Panel B. Average lobbying spending is not significantly different in the post-event period compared to the pre-event period for firms getting defense contracts. Lobbying spending considered for post-event period captures the period January 2001–December 2001 as we use lagged lobbying spending in our analysis. This finding suggests that September 11 attacks and the Afghan war have not affected average lobbying spending of firms obtaining defense contracts in the next few months following these events. Firms obtaining other contracts have higher lobbying spending in the post-event period. However, difference-in-difference statistics suggest that lobbying activities of firms obtaining defense contracts are not different than those obtaining other contracts in the post-event period compared to pre-event period. In addition, across the timeline, average lobbying spending of firms getting defense contracts is larger than those getting other contracts.

We can observe these relations in Figure 2 as well. Average lobbying spending has similar trends for firms obtaining defense contracts as well as those obtaining other contracts. Also, average lobbying spending for defense contract sample is larger. Figure 2 further shows average federal contract size, measured in natural logarithm, for lobbying firms and for firms that are not lobbying for defense contract and other contract samples. There is a sharp increase in the average contract size for firms with lobbying spending in the defense contract sample. There is also an increase for firms that do not lobby in this sample, but the increase is relatively small. Also, as expected, we do not observe any particular change in the average contract size along the event timeline for firms receiving other contracts. Overall, firms with lobbying activities benefit significantly from the exogenous shock that increased defense spending, whereas the effect is diminutive for those that are not lobbying.

Scatter plots that relate federal contracts to lobbying amounts for both the defense contract and the other contract samples show that the slope between the size of defense contracts and lobbying amount has increased drastically after the exogenous shock that increased defense spending. We also see that there is no significant change in the relation between the size of other contracts and lobbying amount in relation to the event. These figures represent evidence that lobbying implies major value for corporations as each dollar spent in lobbying helps firms secure a larger share of federal spending following the unexpected events that increased defense funding.

We also carry out mean difference tests for the size of contracts between post-event and pre-event periods for the firms that are lobbying and for those that are not lobbying in

both the defense and other contracts sample. These results are in Table 3, Panel A. Although all firms that obtain defense contracts experience an increase in the contract size after the event, the increase observed for firms with lobbying activities is more than 10 times larger than that is observed for firms that are not lobbying. Thus firms with lobbying activities on the average obtain significantly larger defense contracts after the event in comparison to firms that are not lobbying. For the placebo sample of other contracts, there is no exogenous shock in our sample period to affect the funding for these contracts. In line with this point, for firms that are lobbying or not lobbying, the contract sizes are not different across the event timeline.

In the next steps, we carry out DD and DDD estimations in the panel data setting following the models presented in (1) and (2). In these estimations, firm and year effects are included and standard errors are clustered at the firm level. The results are in Table 4. Panel A gives the results using lobbying amounts, which is in natural logarithm of the total lobbying spending of a corporation, and Panel B gives the results with lobbying indicators, where the indicator takes the value of one for firms with lobbying activities and is zero otherwise. In the first 4 columns, we look at DD estimations for defense and other contracts sample, respectively. Column 5 pools both defense and other contracts sample and gives DDD estimation results.

The results presented in Table 4 strongly support aforementioned findings on the effects of lobbying. Firms with lobbying activities receive significantly larger defense contracts following the exogenous shock that increased defense funding. We observe this finding using both lobbying amounts and lobbying indicators. For other contracts, there is no such effect, in line with the argument that these contracts are not affected from September 11 attacks and the following Afghan war as defense contracts did. When we examine DDD results, the evidence indicates that the size of defense contracts increased for all firms compared to the pooled sample following the exogenous shock, but firms with lobbying activities received even larger defense contracts when defense funding increased following the events of September 11 and the Afghan war in 2001.

These findings are economically significant. Looking at the value of lobbying for corporations based on the DD estimations in Table 2, column 2 indicates that firms with lobbying activities receive 92 percent larger defense contracts after the event than firms that are not lobbying. If we look at lobbying amounts, increasing lobbying spending by \$1 brings in around \$2.5 in federal contracts. When we consider DDD estimates in column 5, the size of defense contracts obtained by firms with lobbying activities increased 28 percent more than the size of other contracts received by firms with lobbying activities after the event. This figure is only 3 percent for firms that are not lobbying. Thus the size of contracts received after the event by firms with lobbying activities is more than 9 times larger than that is received by firms that are not lobbying.

Overall, these findings show that lobbying generate substantial value for corporations. Firms with lobbying activities secure considerably larger defense contracts after the event

than firms without lobbying activities when defense spending increased due to an exogenous shock.

B. Campaign Contributions

Contributions to election campaigns constitute an alternative channel for establishing political connections. PAC contributions to winning candidates can help companies get favorable treatment following elections. We examine whether we observe such effects by exploiting the exogenous shock of 2001 on federal procurement contracts.

As in lobbying, we first look at whether campaign contributions differ in the post-event period compared to the pre-event period. For the post-event and event periods, we consider campaign contributions in the 2000 election cycle, and for the pre-event period, we consider campaign contributions in the 1998 elections as discussed in Section 2. In robustness, we also carry out these analyses using exact dates of campaign contributions rather than cycles in matching with the event timeline and the results are comparable. When we look at mean differences of campaign contributions over the event window in Table 2, Panel C, we observe that there is no significant change in campaign contributions in the post-event period compared to pre-event period in both the defense and other contract sample. Thus campaign contributions are stable along the event windows considered in our study. We also see this evidence in Figure 3 when we look at campaign contributions as well as the relation between federal contracts and campaign contributions.

In Figure 3, when we examine the average size of contracts received by firms that contributed to election campaigns, we see that there is a jump in the size of contracts following the events of September 11 in 2001, whereas there is no such considerable change for the firms that do not contribute to campaigns. Also, firms in the other contracts sample do not experience major change in the contract size during the sample period, which is expected as there is no event that affected the funding of these contracts. These figures, thus, give an indication of the positive relation between campaign contributions and the amount of corporate funding by federal government when the available funding increases due to an exogenous shock.

We also show scatter plots for the relation between the federal contract size and campaign contribution amount. The figure for the defense contract sample shows that each dollar of campaign contribution returns larger contracts after the event, whereas there is no similar effects observed for the other contracts. Again, these figures indicate that political connections help firms secure more federal funding for each dollar invested for these connections when the available funding amount increased.

We find confirming evidence when we look at mean differences of federal contracts in relation to campaign contributions between post-event and pre-event periods in Table 3, Panel B. The results indicate that firms that have contributed to election campaigns are awarded larger defense contracts following the exogenous event that increased defense spending. As expected, we do not see such an effect for other contracts. We also see that

firms that are contributing to campaigns get larger contracts across the board than firms that are not involved in campaign contributions for both defense and other contract samples as well as along the sample period timeline. The evidence from mean difference tests suggest that firms that contribute to election campaigns benefit from these political connections by receiving larger contracts than their counterparts when available funding for these contracts increase.

Next, we carry out DD and DDD estimations using our panel data on defense contract sample, other sample and pooled sample that includes both defense and other contracts. As in lobbying, DD estimations are run for defense contract and other contract sample, separately, and DDD estimations are run for the pooled sample. Firm and time effects are included and standard errors are clustered at the firm level. The results are in Table 5. In Panel A, we look at the total campaign contribution of a corporation during the election cycle that corresponds to the time period before the budget requests were submitted as discussed in Section 2. In Panel B, we use an indicator that takes the value of one if campaign contribution amount of a company is positive, and is zero otherwise. The results in Table 5 show that when we include firm and time effects, we do not find a significant relation between the size of federal contracts awarded and campaign contributions following the events of September 11 that has increased defense spending.

Overall, there is some evidence that political connections via campaign contributions help firms secure larger federal contracts. However, these effects are not robust to panel data estimations including firm and year effects.

C. Board Connections

Directors in a corporate board connected to the government can generate value for corporations in getting better deals from the government. For example, Goldman, Rocholl, and So (2013) find that firms that are connected to the winning party through their board of directors get more federal procurement contracts after the elections. Here instead of looking at a corporate board along the party lines, we look at the connection of a board to the federal government's directly defense-related operations. In this regard, as discussed in Section 2, we look at board connections to federal armed forces by way of previous employment or through connections to other boards which includes directors that has worked in defense in the past. We consider these board connections only for the firms in the defense contract sample as there is no particular reason to deem such employment histories to be relevant for other contracts received from the federal government.

We first look at whether board connections have changed in the post-event period compared to pre-event period. Figure 4 shows average defense contract size throughout the sample period. Defense contract size increases substantially following the exogenous shock for the firms with board connections to defense. We observe an increase for the firms that are not connected as well, but this increase is considerably small compared to those observed for connected firms.

Next, we look at mean difference tests for the size of defense contracts after the event compared to before the event. The results are in Table 3, Panel C. Average contract size increases after the event for all defense firms regardless of board connections, suggesting that increased defense spending benefited all firms that receive defense contracts. The size of contracts received by firms that have board connections to defense, however is considerably larger than that is observed for firms without connections. Again this finding indicates that board connections to defense are valuable for corporations receiving contracts from the government when defense spending increased.

We carry out panel data estimations with firm and year effects for the defense contract sample as these board connections are relevant mainly for this sample. We also run a pooled regression including both defense and other contract sample where the connections to defense are considered specifically for the defense sample. These results are in Table 6. Consistent with aforementioned findings, firms with board connections benefit the most from increased defense spending after the exogenous shock. We see similar effects in the pooled sample in column 3. This column shows that contract size increased after the event for all firms receiving defense contracts, but the contract size is much larger for firms with board connections.

The results are economically significant. When we look at the firms obtaining defense contracts in Table 6, column 2, firms with board connections receive 93 percent larger contracts after the event whereas firms without board connections have 5 percent increase in defense contract size following the shock. When we consider the pooled sample in Table 6, column 3, firms with board connections get twice as large defense contracts after the event, whereas firms without connections get 8 percent larger defense contracts in comparison to the pooled sample.

Overall, the evidence shows that board connections to government generate considerable value for corporations. Connected firms get substantially large share of government funding when the funding increases due to an exogenous event.

D. Joint Specifications

We examine political connections by focusing on lobbying, campaign contributions and board connections separately in the previous sections. Here we carry out DD and DDD estimations with firm and year effects including all these political connection variables together. This specification is useful in understanding whether these political connections complement or substitute each other. If the results are driven mainly by one type of connection that is correlated with another, then joint specifications can help us detect it. Alternatively, if all these connections complement each other and benefit corporations in securing favors from government, then the results from these specifications would be comparable to those obtained when each political connection is considered separately. These results are in Table 7.

In Table 7, we present results for defense, other and pooled samples, where we run DD estimations for defense and other contract sample and DDD estimations with the pooled sample. The results show that both board connections and lobbying are significant determinants of the increased size of defense contracts following the event, whereas campaign contributions do not reveal any robust indication. Overall, these findings are in line with our previous findings that both board connections and lobbying activities are important political connections that help corporations secure larger funding when the funding increases due to an exogenous shock.

E. Robustness

To gauge the robustness of our findings, we first look at whether our results are more general, or are driven by major defense contractors. In this regard, we perform our baseline analysis by excluding top 10 defense contractors during our analysis period.² These results are given in Table 8, Panel A. In line with our earlier results, there is a positive and significant effect of lobbying and board connections on the amount of defense contracts obtained after the event. Again, campaign contributions do not have any significant impact. Thus, our findings are not driven solely by companies that received the largest defense contracts from the government.

Next, we carry out a similar analysis for a placebo period. We look at federal contracts for the period October 2004-September 2007. Iraq war has started in March 2003 and therefore increased defense spending has been ongoing during this period. There was also no additional major event that should affect defense contracts. We consider October 2004-September 2005 as pre-event, October 2005-September 2006 as event and October 2006-September 2007 as post-event periods. Lobbying, campaign contributions and board connections are determined in the same manner as in the baseline estimations. We report the results for defense contracts in Table 8, Panel B.³ There is no significant relation between lobbying, board connections and defense contracts during this period. Campaign contributions also do not reveal any significant relation to federal contracts. Although there seems to be a positive relation between campaign contribution and defense contracts in the post event period, the result is not significant in the specification that uses an indicator for campaign contribution.

² Companies that received top 10 defense contracts during our sample period are BAE systems, Boeing, General Electric, General Dynamics, L-3 Communications, Lockheed Martin, Northrop Grumman, Raytheon, SAIC and United Technologies.

³ We also carry out placebo estimations for other contracts. The results do not show any significant relation between lobbying, campaign contributions and federal contracts.

IV. CONCLUSION

There is an ongoing debate on the value of political connections. We look at this question by exploiting an exogenous shock on federal procurement contracts. As alternative means of political connections, we focus on lobbying, campaign contributions, and board connections.

Using September 11 attacks and the subsequent war in Afghanistan as an unexpected shock that increased defense spending, we find that firms with lobbying activities and firms with board connections to government receive substantially larger federal procurement contracts after this shock. The size of the contracts received by these politically connected firms is almost twice larger after the event, whereas this increase is less than 10 percent for firms without connections. We do not observe a similar effect for contracts received from other US agencies.

Overall, the results of the paper add to the literature by showing that political connections generate substantial value for corporations by helping these firms secure larger contracts from the government when available funds increase.

Some other interesting research questions for future research involve the network of these connections. It would be fruitful to observe the details of these connections such as whether revolving door lobbying brings additional benefits to corporations within this context.

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Appendix. Background on Defense Procurement Process

The federal budget process in the U.S. has three fundamental phases: formulation, subsequent actions by Congress and the President to provide a legally-executable budget, and actual execution. These phases take place in a continuum in the sense that all three happen concurrently but for different fiscal years. Specifically, while the last approved budget is being executed (phase 3), the next budget is undergoing review and approval in Congress (phase 2) and the budget after that one to be submitted to Congress is being formulated within the departments and agencies.

Overall, the process has a lead time of at least 9 months before formal submission to Congress and 18 months before the fiscal year actually begins on October 1. This means that most agencies submit budget requests to the Office of Management and Budget (OMB) in the fall, starting the formulation phase. After a review of details and resolution of issues, the President's budget is finalized by end-December and transmitted to Congress in early February. The second phase consisting of hearings, committee reports, reconciliation by conference committees, floor votes, appropriate bills, more floor votes, and signature or veto by the President generally extends into end-June. Actual execution begins in October, with room for continuing resolutions if not all appropriations bills are yet signed.

The Department of Defense (DoD) budget falls under the discretionary spending portion and is subject to annual budget authority by Congress. In other words, these expenditures are authorized under appropriations bills that need to be reenacted annually.⁴ The DoD budget submitted for inclusion in the President's Budget is a product of its Planning, Programming and Budgeting System (PPBS).

Appropriations for the DoD are covered by two separate bills: the Military Construction Appropriations Bill, which addresses Military Construction and Family Housing, and the Department of Defense Appropriations Bill for all other DoD operations. These bills incorporate a number of individual appropriations covering procurement in addition to military personnel, operation and maintenance, RDT&E (Research, Development, Test and Evaluation). Congress relies on reports by three committees when deciding on the appropriations: Budget committees and Appropriations committees. Before funds can be obligated, OMB must apportion the funds to DoD and Treasury warrants must be issued.

Our analysis focuses on the procurement portion of federal spending. In the basic federal procurement process, acquisition personnel first determines the goods and services their agency needs and then post a solicitation on the Federal Business Opportunities (FedBizOpps) website. Interested companies prepare their offers in response to the solicitation, and, in accordance with applicable provisions of the Federal Acquisition Regulation (FAR), agency personnel evaluate the offers. To be eligible to compete for government contracts, a company must obtain a Data

⁴ By contrast, expenditures under "direct" or "mandatory" spending are funded by permanent law and, hence, are not controlled through separate appropriations actions for the year. Large entitlement programs such as Social Security and Medicare and the interest on public debt fall under this portion of the budget.

Universal Numbering System (DUNS) number and register with the federal government's System for Award Management (SAM).⁵ Several agencies, such as the General Services Administration (GSA), provide assistance and services to existing and potential government contractors. Research and development (R&D) procurement opportunities may involve traditional contracting methods, such as solicitations and contracts, as well as nontraditional methods, which include agency-sponsored contests and venture capital funds.

Among all procurement activities, those by DoD are by far the largest. All DoD purchases typically begin at one of three points: sole source procurement, procurement under an existing Multiple Award Contract (MAC), normal procurement. Sole source procurements are made when there is only one company that can fulfill the contract and are rare. Procurements under an existing MAC involve companies first obtaining a MAC and then compete for task orders.^{6,7} Only those companies with a MAC can compete for the task orders, limiting the number of competitors and hence the value of having a MAC.

⁵ Another type of procurement opportunity for a company is to serve as a subcontractor for a government contractor.

⁶ MACs are increasingly popular, especially to meet IT needs. Examples of MAC include General Services Administration (GSA) schedules, Navy Seaport-e (an electronic platform for acquiring support services for the Navy Systems Commands, the Office of Naval Research, the United States Marine Corps, and the Defense Threat Reduction Agency (DTRA) in 22 functional areas including Engineering, Financial Management, and Program Management), Air Force NETCENTS II, and Broad Agency Announcements (BAAs). For instance, BAAs are solicitations issued by an agency when it seeks basic research work. Topics of interest are presented and companies and universities submit proposals with possible solutions needing funding.

⁷ "Task order" contracts are used to acquire supplies and/or services when the exact times and/or exact quantities of future deliveries are not known at the time of contract award. Task order contracts permit government stocks of specific items to be maintained at minimum levels and allow direct shipments to the users of products or services. They also permit great flexibility in both quantities and delivery scheduling and the ability of buyers to order supplies and services only after specific requirements for them materialize. Perhaps most significantly, task order contracts limit the government's obligation to the minimum quantity specified in the contract. Task order contracts are used by buyers who cannot predetermine the precise quantities of supplies or services they will require during the contract period when it is inadvisable for them to commit to any more than a minimum quantity. Using an "indefinite delivery, indefinite quantity (IDIQ)" vehicle, buyers place orders for individual requirements, and quantity limits may be stated as number of units or as dollar values. The contract must require the buyer to order and the contractor to furnish at least a stated minimum quantity of supplies or services. A task order contract must specify the period of performance, including the number of option periods, and must specify the total minimum and maximum quantity of supplies or services the government will acquire under the contract.

Table 1. Descriptive Statistics

This table reports descriptive statistics for the sample period October 1, 2000-September 30, 2003. Pre-event, event and post-event periods are October 2000-September 2001, October 2001-September 2002, and October 2002-September 2003, respectively. Total amount of federal procurement contracts is given in million dollars as well as in natural logarithm. Lobbying and campaign contributions correspond to lagged lobbying amount and lagged campaign contribution amount, respectively. An indicator for lobbying, campaign contribution and board connections takes the value of one for companies that are involved in lobbying, campaign contribution or board connections, respectively. The statistics are reported for the overall sample as well as for defense contract sample and other contracts sample, separately. Defense contracts correspond to federal procurement contracts awarded by the Department of Defense. Other contracts correspond to the sum of contracts awarded by Agriculture, Commerce, Energy, Health, Interior, Justice, Transportation, Treasury and Veteran Affairs Departments as well as NASA and General Services Administration. Board connection indicators are reported only for defense contracts.

								Mean		
	Mean	Std.Dev	Median	25th Percentile	75th Percentile	Min	Max	Preevent	Event	Postevent
All										
Contracts (in million \$s)	75	2,270	0.63	2	8	0	39,500	72	73	82
Log(Contracts)	14.79	1.96	13.35	14.47	15.95	0	26.70	14.77	14.78	14.83
Lobbying	17,539	264,704	0	0	0	0	16,500,000	16,336	17,563	18,790
Log(Lobbying)	0.36	2.06	0	0	0	0	16.62	0.34	0.36	0.38
Lobbying indicator	0.03	0.17	0	0	0	0	1.00	0.03	0.03	0.03
Campaign contributions	843	19,133	0	0	0	0	1,663,315	695	903	937
Log (Campaign contributions)	0.09	0.98	0	0	0	0	14.32	0.08	0.09	0.10
Campaign contribution indicator	0.01	0.09	0	0	0	0	1	0.01	0.01	0.01
No. of obs.	87,194	87,194	87,194	87,194	87,194	87,194	87,194	29,821	29,278	28,095
Defense										
Contracts (in million \$s)	155	36,900	1.30	5	23	0	39,500	144	152	171
Log(Contracts)	15.60	2.20	14.05	15.51	16.98	0	26.70	15.51	15.59	15.69
Lobbying	27,848	331,556	0	0	0	0	13,500,000	26,145	27,390	30,169
Log(Lobbying)	0.53	2.49	0	0	0	0	16.42	0.50	0.53	0.55
Lobbying indicator	0.04	0.20	0	0	0	0	1	0.04	0.04	0.05
Campaign contributions	1,618	27,907	0	0	0	0	1,663,315	1,240	1,815	1,820
Log (Campaign contributions)	0.16	1.29	0	0	0	0	14.32	0.15	0.16	0.16
Campaign contribution indicator	0.02	0.12	0	0	0	0	1	0.01	0.02	0.02
Board connection indicator	0.009	0.092	0	0	0	0	1	0.009	0.009	0.008
No. of obs.	31,954	31,954	31,954	31,954	31,954	31,954	31,954	11,038	10,699	10,217
Other										
Contracts (in million \$s)	29	496	0.50	1	4	0	4,730	29	27	31
Log(Contracts)	14.33	1.63	13.12	14.01	15.22	12.21	24.58	14.33	14.32	14.33
Lobbying	11,575	216,598	0	0	0	0	16,500,000	10,571	11,905	12,288
Log(Lobbying)	0.26	1.77	0	0	0	0	16.62	0.24	0.26	0.28
Lobbying indicator	0.022	0.146	0	0	0	0	1	0.020	0.022	0.023
Campaign contributions	395	11,261	0	0	0	0	904,516	375	377	432
Log (Campaign contributions)	0.05	0.73	0	0	0	0	13.72	0.05	0.05	0.06
Campaign contribution indicator	0.01	0.07	0	0	0	0	1	0.01	0.01	0.01
No. of obs.	55,240	55,240	55,240	55,240	55,240	55,240	55,240	18,783	18,579	17,878

Table 2. Comparison of Means across Event Timeline

This table reports mean difference tests for the natural logarithm of contract size, lagged lobbying amount and lagged campaign contributions between post-event and pre-event periods as well as between firms obtaining defense contracts and those obtaining other contracts. The event periods as well as variables are explained in detail in Table 1. Mean difference tests assume unequal variances across samples. Bold statistics correspond to difference-in-difference tests. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

Panel A: Contracts			
	Pre-Event	Post-Event	<i>Difference</i>
Defense	15.51	15.69	0.18***
Other	14.33	14.33	0
<i>Difference</i>	1.18***	1.36***	
<i>Difference in difference</i>			0.18***
Panel B: Lobbying			
	Pre-Event	Post-Event	<i>Difference</i>
Defense	0.5	0.55	0.05
Other	0.24	0.28	0.04**
<i>Difference</i>	0.26***	0.27***	
<i>Difference in difference</i>			0.01
Panel C: Campaign contributions			
	Pre-Event	Post-Event	<i>Difference</i>
Defense	0.15	0.16	0.01
Other	0.05	0.06	0.01
<i>Difference</i>	0.1	0.11	
<i>Difference in difference</i>			0.00

Table 3. Comparison of Means – Federal Contracts in Relation to Political Connections

This table reports mean difference tests for the natural logarithm of contract size in relation to political connections. Panel A, Panel B and Panel C give results for lobbying, campaign contributions and board connections, respectively. In Panel A, lobbying corresponds to the sample of firms with lobbying activities. In Panel B, campaign corresponds to firms that contributed to the campaign during an election cycle. In Panel C, board connection corresponds to firms that have board of directors connected to army, navy, air force or armed forces. The results are reported for firms that obtain defense contracts and for firms that obtain other contracts in Panel A and B, and only for firms that get defense contracts for Panel C. Mean difference tests assume unequal variances across samples. Bold statistics correspond to difference-in-difference tests. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

Panel A: Federal Contracts and Lobbying			
	Pre-Event	Post-Event	Difference
Defense			
Lobbying	16.35	17.98	1.63***
Not lobbying	15.47	15.58	0.11***
Difference	0.88***	2.40***	
		<i>Difference in difference</i>	1.52***
Other			
Lobbying	15.63	15.69	0.06
Not lobbying	14.31	14.30	-0.01
Difference	1.32***	1.39***	
		<i>Difference in difference</i>	0.07
Panel B: Federal Contracts and Campaign Contributions			
	Pre-Event	Post-Event	Difference
Defense			
Campaign	17.68	18.40	0.72
No campaign	15.48	15.65	0.17
Difference	2.20***	2.75***	
		<i>Difference in difference</i>	0.55**
Other			
Campaign	15.95	15.78	-0.17
No campaign	14.33	14.33	0.00
Difference	1.62***	1.45***	
		<i>Difference in difference</i>	-0.17
Panel C: Federal Contracts and Board Connections			
	Pre-Event	Post-Event	Difference
Defense			
Board connection	16.29	17.35	1.08**
No board connection	15.51	15.68	0.17***
Difference	0.78**	1.42***	
			0.91***

Table 4. Lobbying and Federal Contracts

This table reports the relation between the size of federal procurement contracts and lobbying activities in response to the exogenous event of September 11 attacks and the following Afghan war that increased defense spending. Results are presented for difference-in-difference (DD) and difference-in-difference-in-difference (DDD) estimations for the panel data that consists of defense contracts and other contracts (for DD) and both (for DDD). Sample period runs from October 2000 to September 2003. Panel A and Panel B reports results using lobbying amount and lobbying indicator, respectively. One period lagged lobbying is used in estimations. Natural logarithm of lobbying amount gives the lobbying amount. For lobbying indicators, the indicator takes a value of one for companies that have lobbying activities. Defense corresponds to an indicator variable that is one for defense contracts and zero otherwise. Post-event is an indicator variable that is equal to one for post-event period and is zero otherwise. Post-event period is from October 2002 to September 2003, which corresponds to the fiscal year when contracts are awarded following the budget submitted by federal agencies between September and December 2001, right following the exogenous events of September 11 and the Afghan war. Firm and year effects are included. Reported t-statistics are in brackets. Significant variables are in bold. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

Panel A: Lobbying Amount					
	(1) Defense	(2) Defense	(3) Other	(4) Other	(5) Both
Lobbying	-0.00115 [-0.0950]	-0.0224* [-1.718]	0.00948 [1.358]	0.0118 [1.577]	0.0115 [1.543]
Post-event*Lobbying		0.0496*** [4.779]		-0.00500 [-0.839]	-0.00507 [-0.850]
Lobbying*Defense					-0.0334** [-2.226]
Post-event*Defense					0.0618*** [3.922]
Post-event*Lobbying*Defense					0.0547*** [4.567]
Observations	31,954	31,954	55,240	55,240	87,194
R-squared	0.002	0.007	0.001	0.001	0.003
Panel B: Lobbying Indicator					
VARIABLES	(1) Defense	(2) Defense	(3) Other	(4) Other	(5) Both
Lobbying	-0.0585 [-0.454]	-0.314** [-2.197]	0.113 [1.376]	0.136 [1.557]	0.134 [1.532]
Post-event*Lobbying		0.631*** [4.850]		-0.0557 [-0.757]	-0.0567 [-0.770]
Lobbying*Defense					-0.443*** [-2.645]
Post-event*Defense					0.0606*** [3.844]
Post-event*Lobbying*Defense					0.688*** [4.599]
Observations	31,954	31,954	55,240	55,240	87,194
R-squared	0.002	0.008	0.001	0.001	0.004

Table 5. Campaign Contributions and Federal Contracts

This table reports the relation between the size of federal procurement contracts and campaign contributions in response to the exogenous event of September 11 attacks and the following Afghan war that increased defense spending. Results are presented for difference-in-difference (DD) and difference-in-difference-in-difference (DDD) estimations for the panel data that consists of defense contracts and other contracts (for DD) and both (for DDD). Sample period runs from October 2000 to September 2003. Panel A and Panel B reports results using campaign contribution amount and campaign contribution indicator, respectively. Natural logarithm of total campaign contribution spending of a firm over the corresponding election cycle gives the campaign contribution amount. For campaign contribution indicators, the indicator takes a value of one for companies that contributed to election campaigns. Post-event is an indicator variable that is equal to one for post-event period and is zero otherwise. Post-event period is from October 2002 to September 2003, which corresponds to the fiscal year when contracts are awarded following the budget submitted by federal agencies between September 2001 and December 2001, right following the exogenous events of September 11 and the Afghan war. Firm and year effects are included. Reported t-statistics are in brackets. Significant variables are in bold. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

Panel A: Campaign Contribution Amount					
	(1) Defense	(2) Defense	(3) Other	(4) Other	(5) Both
Campaign	0.0445 [1.232]	0.0459 [1.162]	-0.0131 [-0.727]	0.0122 [0.491]	0.0123 [0.496]
Post-event*Campaign		-0.00204 [-0.121]		-0.0308* [-1.678]	-0.0311* [-1.693]
Post-event*Defense					0.0880*** [5.377]
Campaign*Defense					0.0336 [0.719]
Post-event*Campaign*Defense					0.0292 [1.170]
Observations	31,954	31,954	55,240	55,240	87,194
R-squared	0.003	0.003	0.001	0.001	0.001
Panel B: Campaign Contribution Indicator					
	(1) Defense	(2) Defense	(3) Other	(4) Other	(5) Both
Campaign	0.460 [1.197]	0.498 [1.186]	-0.0580 [-0.337]	0.169 [0.716]	0.171 [0.720]
Post-event*Campaign		-0.0584 [-0.338]		-0.300* [-1.659]	-0.303* [-1.674]
Post-event*Defense					0.0888*** [5.424]
Campaign*Defense					0.327 [0.678]
Post-event*Campaign*Defense					0.246 [0.985]
Observations	31,954	31,954	55,240	55,240	87,194
R-squared	0.003	0.003	0.001	0.001	0.001

Table 6. Board Connections and Federal Contracts

This table reports the relation between the size of federal procurement contracts and board connections for the defense contract sample in response to the exogenous event of September 11 attacks and the following Afghan war that increased defense spending. Sample period runs from October 2000 to September 2003. Board connections are determined if a board of director has an employment history in the army, navy, air force or armed forces, or has worked with a director on another board that has worked in these areas. Post-event is an indicator variable that is equal to one for post-event period and is zero otherwise. Post-event period is from October 2002 to September 2003, which corresponds to the fiscal year when contracts are awarded following the budget submitted by federal agencies between September 2001 and December 2001, right following the exogenous events of September 11 and the Afghan war. Firm and year effects are included. Reported t-statistics are in brackets. Significant variables are in bold. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

	(1) Defense	(2) Defense	(3) Both
Board connection	0.0517 [0.253]	-0.131 [-0.623]	-0.130 [-0.617]
Post-event*Board Connection		0.617** [1.968]	0.619** [1.972]
Post-event*Defense			0.0859*** [5.282]
Observations	31,954	31,954	87,194
R-squared	0.002	0.003	0.001

Table 7. Joint Specifications

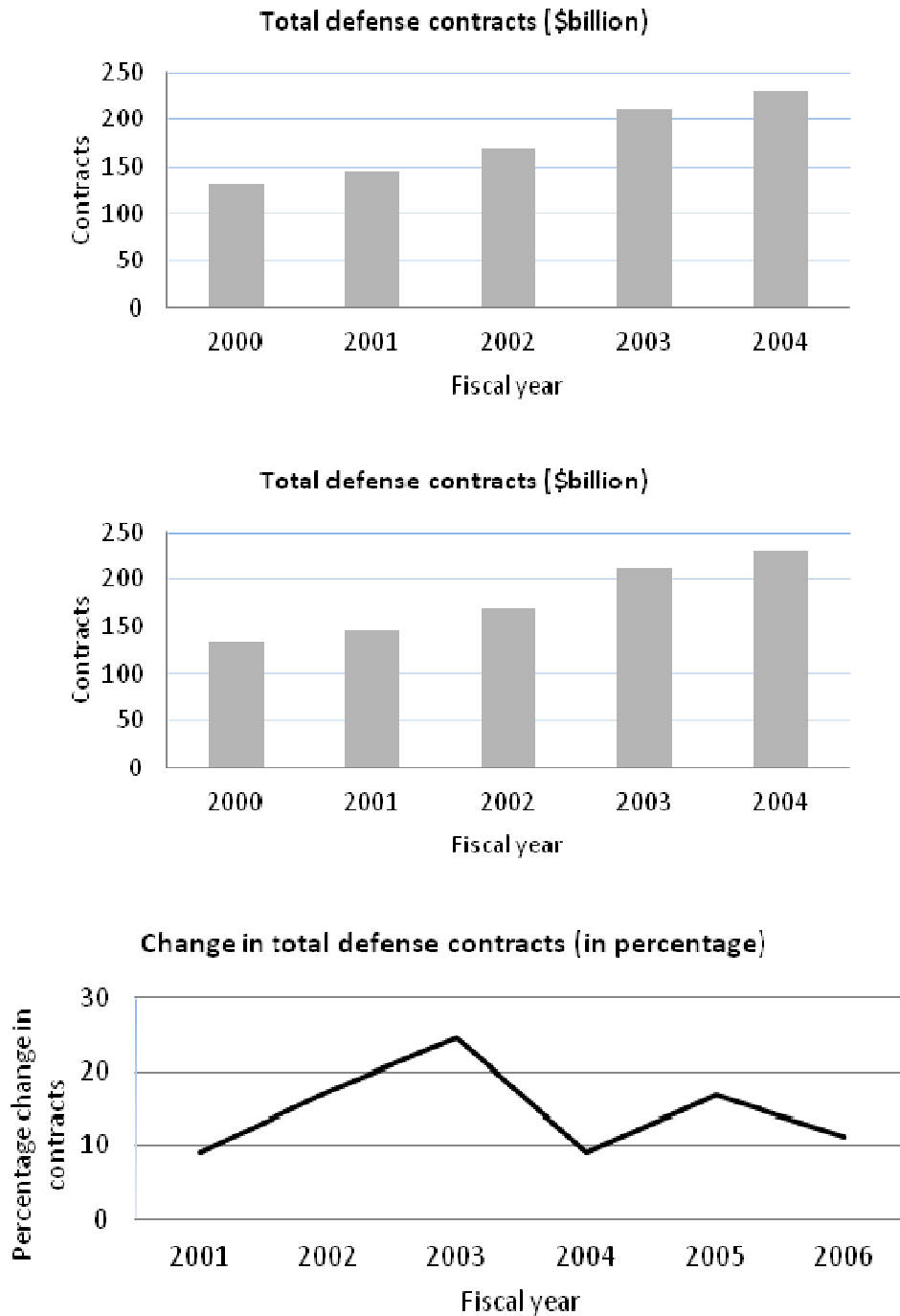
This table reports the relation between the size of federal procurement contracts and lobbying, campaign contributions and board connection in response to the exogenous event of September 11 attacks and the following Afghan war that increased defense spending. Results are presented for difference-in-difference (DD) and difference-in-difference-in-difference (DDD) estimations for the panel data that consists of defense contracts and other contracts (for DD) and both (for DDD). Sample period runs from October 2000 to September 2003. For each sample, results are given for the amount of campaign contribution and lobbying spending as well as indicator for lobbying and campaign contribution activities. Board connections are determined only for the defense contract sample. Natural logarithm of lobbying and campaign contribution amount is used. Board connection indicator take a value of one if a board member has employment history in the army, navy, air force or armed forces or is connected to a director with such employment history. Post-event is an indicator variable that is equal to one for post-event period and is zero otherwise. Post-event period is from October 2002 to September 2003, which corresponds to the fiscal year when contracts are awarded following the budget submitted by federal agencies between September 2001 and December 2001, right following the exogenous events of September 11 and the Afghan war. Firm and year effects are included. Reported t-statistics are in brackets. Significant variables are in bold. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

	Defense		Other		Both	
	Amount	Indicator	Amount	Indicator	Amount	Indicator
Lobbying	-0.0366** [-2.550]	-0.429** [-2.862]	0.0140* [1.887]	0.163* [1.827]	0.0137* [1.854]	0.161* [1.810]
Post-event*Lobbying	0.0641*** [5.190]	0.787*** [5.203]	0.000393 [0.0629]	0.00224 [0.0289]	0.000368 [0.0590]	0.00159 [0.0205]
Campaign	0.0484 [1.251]	0.372 [1.071]	-0.0368 [-1.449]	-0.248 [-1.099]	-0.0384 [-1.513]	-0.262 [-1.162]
Post-event*Campaign	-0.0609*** [-3.259]	-0.604*** [-3.206]	-0.0222 [-1.358]	-0.209 [-1.308]	-0.0221 [-1.354]	-0.209 [-1.304]
Board connection	-0.0788 [-0.371]	-0.0804 [-0.380]			-0.0771 [-0.361]	-0.0787 [-0.370]
Post-event*Board connection	0.505* [1.684]	0.515* [1.717]			0.506* [1.687]	0.516* [1.720]
Lobbying*Defense					-0.0499*** [-3.089]	-0.585*** [-3.356]
Post-event*Lobbying*Defense					0.0637*** [4.603]	0.785*** [4.620]
Campaign*Defense					0.0883* [1.904]	0.646 [1.559]
Post-event*Campaign*Defense					-0.0388 [-1.563]	-0.395 [-1.600]
Post-event*Defense					0.0591*** [3.719]	0.0581*** [3.656]
Observations	31,954	31,954	55,240	55,240	87,194	87,194
R-squared	0.010	0.010	0.001	0.001	0.005	0.005

Table 8. Robustness

This table reports the relation between the size of federal procurement contracts and lobbying, campaign contributions and board connection for defense contracts sample. In Panel A, sample period runs from October 2000 to September 2003, where there is an exogenous shock on defense spending following September 11, 2001 attacks followed by the Afghan War. In Panel A, top 10 defense contractors are excluded from the sample. In Panel B, placebo sample period runs from October 2004 to September 2007, where there is no exogenous shock on defense spending. For each sample, results are given for the amount of campaign contribution and lobbying spending as well as indicator for lobbying and campaign contribution activities. Natural logarithm of lobbying and campaign contribution amount is used. Board connection indicator take a value of one if a board member has employment history in the army, navy, air force or armed forces or is connected to a director with such employment history. Post-event is an indicator variable that is equal to one for post-event period and is zero otherwise. In Panel A, post-event period is from October 2002 to September 2003, which corresponds to the fiscal year when contracts are awarded following the budget submitted by federal agencies between September 2001 and December 2001, right following the exogenous events of September 11 and the Afghan war. In Panel B, the placebo post-event period is from October 2006-September 2007. Firm and year effects are included. Reported t-statistics are in brackets. Significant variables are in bold. ***, ** and * denote significance at 1, 5 and 10 percent levels, respectively.

Panel A: Defense Contracts Excluding Top 10 Contractors					
	Lobbying		Campaign		Board connection
	Amount	Indicator	Amount	Indicator	Indicator
Lobbying	-0.0322** [-2.233]	-0.383*** [-2.584]			
Post-event*Lobbying	0.0528*** [4.851]	0.666*** [4.943]			
Campaign			0.0460 [1.155]	0.337 [0.940]	
Post-event*Campaign			0.00154 [0.0913]	0.00251 [0.0149]	
Board connection					-0.131 [-0.606]
Post-event*BoardConnection					0.631** [1.963]
Observations	31,924	31,924	31,924	31,924	31,924
R-squared	0.008	0.008	0.003	0.002	0.003
Number of ParentID	12,920	12,920	12,920	12,920	12,920
Panel B: Placebo Period (October 2004-September 2007)					
	Lobbying		Campaign		Board connection
	Amount	Indicator	Amount	Indicator	Indicator
Lobbying	-0.00198 [-0.201]	-0.0531 [-0.463]			
Post-event*Lobbying	0.00155 [0.272]	0.0175 [0.256]			
Campaign			-0.0178 [-0.822]	-0.0768 [-0.349]	
Post-event*Campaign			0.0169* [1.842]	0.162 [1.609]	
Board connection					0.436*** [3.417]
Post-event*BoardConnection					0.0388
Observations	136,607	136,608	136,607	136,607	136,607
R-squared	0.003	0.003	0.003	0.003	0.003

Figure 1. Defense Procurement Contracts

Notes: The data is from the Center for Effective Government. First figure shows total amount of defense contracts awarded in each fiscal year, given in billion US dollars. Second figure shows the percentage of federal contract funding allocated to the United States Department of Defense. Third figure shows the annual percentage change in total defense procurement contracts.

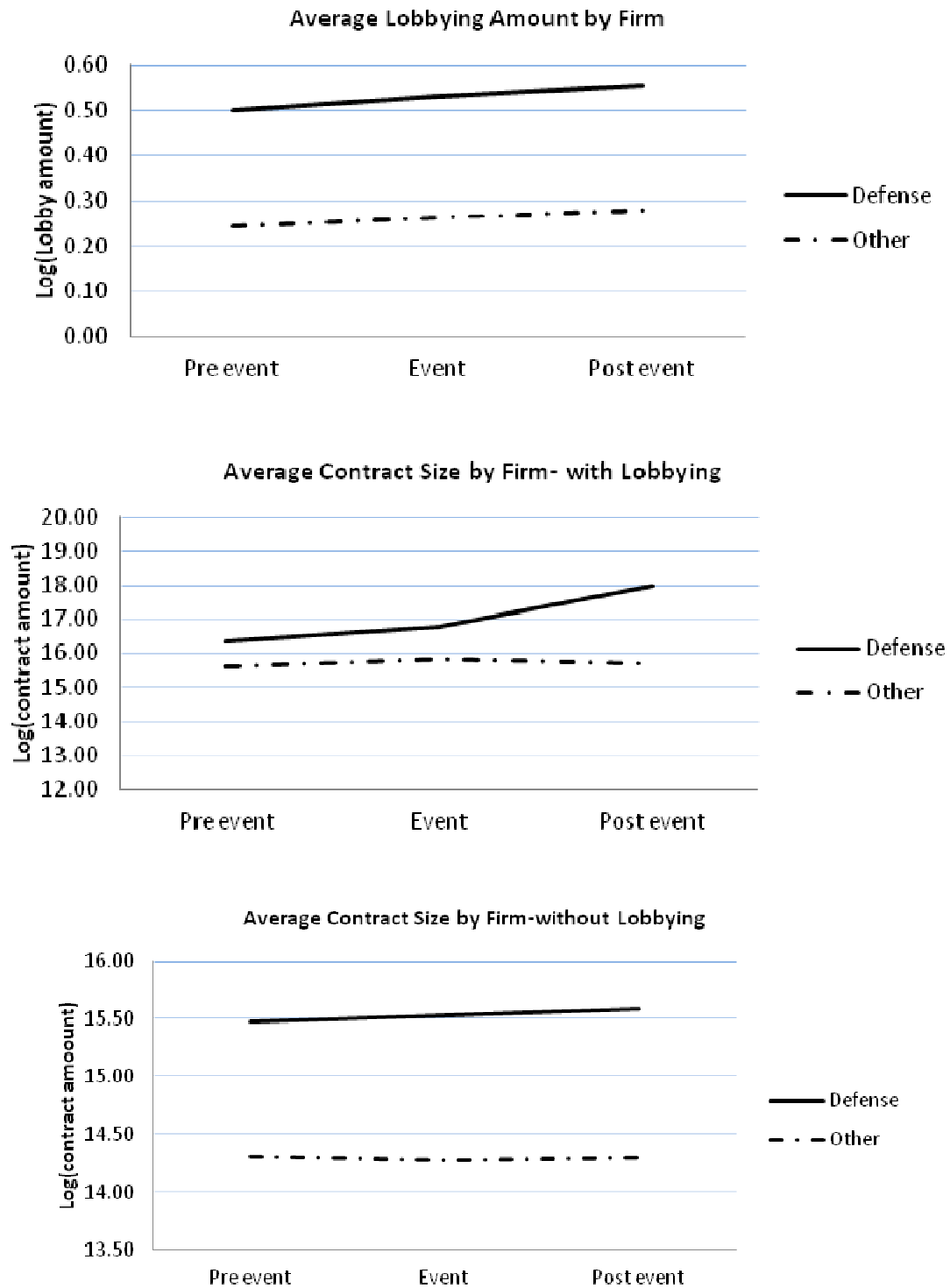
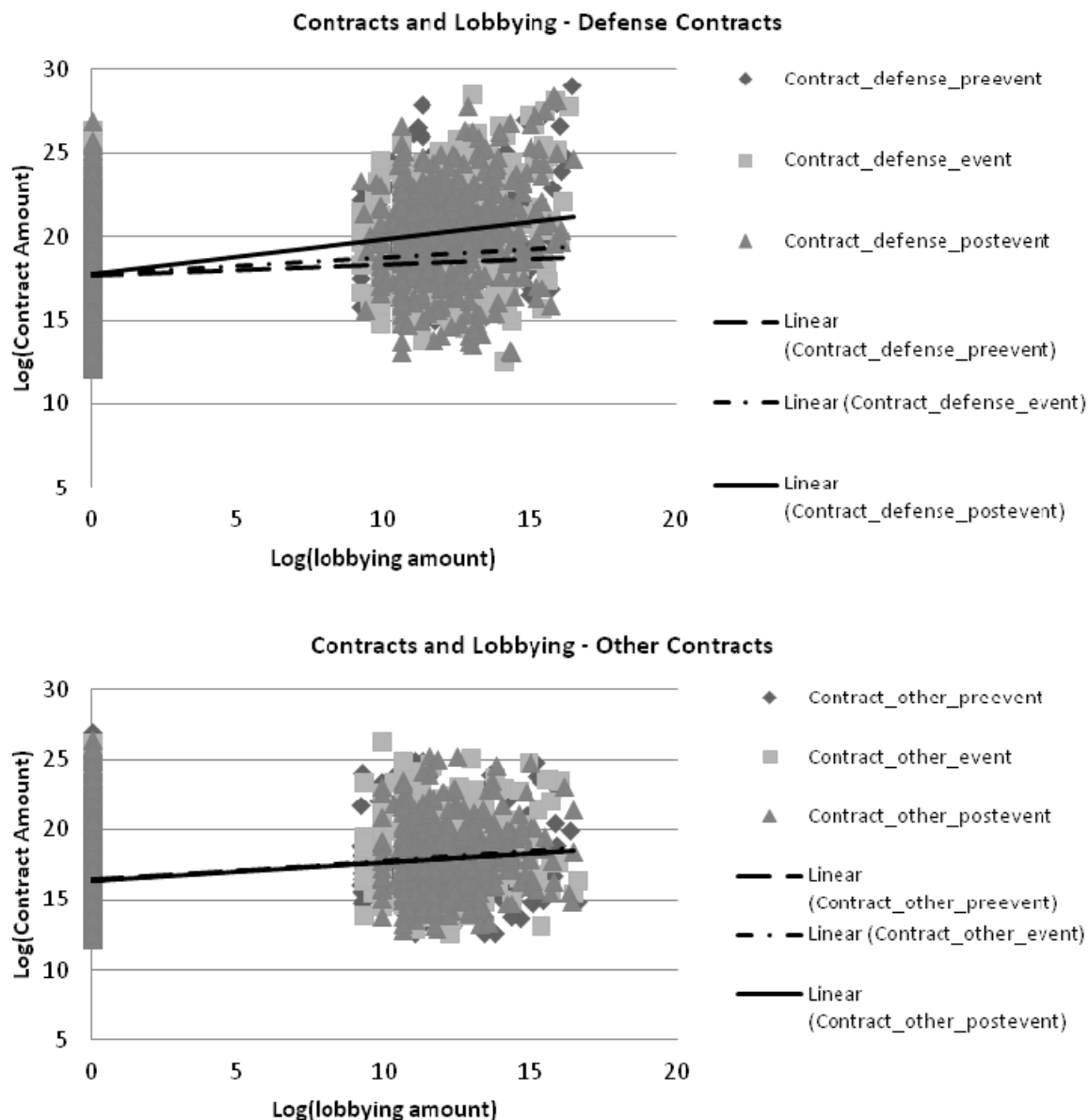
Figure 2. Lobbying and Federal Contracts

Figure 2 - continued



Notes: Natural logarithm of lobbying amount is used for lobbying amount. First figure shows average lobbying amount for firms in defense contract and other contract samples. Second and third figures show average federal contract size for firms with and without lobbying activities. Fourth and fifth figures are scatter plots of the relation between contract size and lobbying amount for defense contract and other contract samples, respectively.

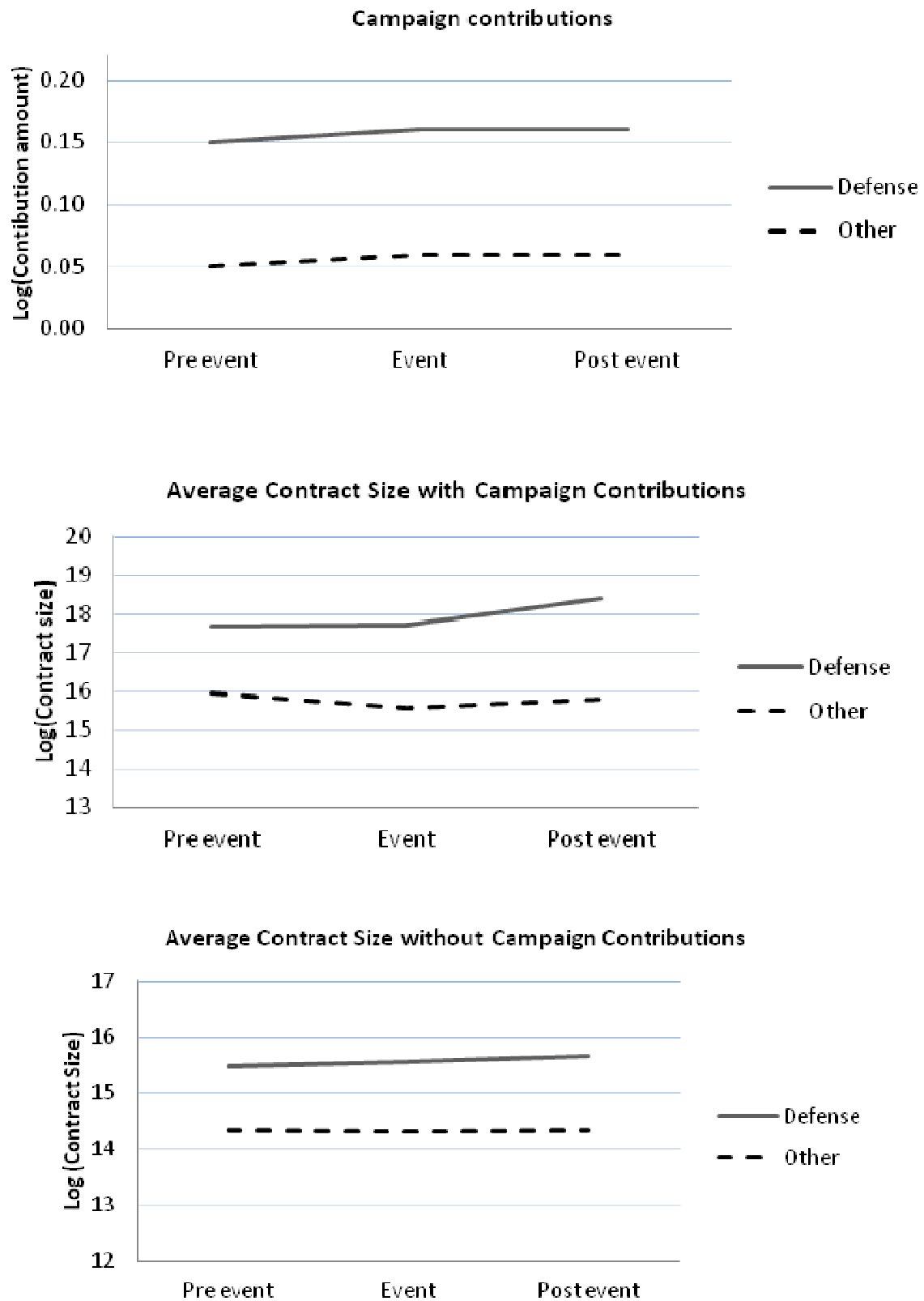
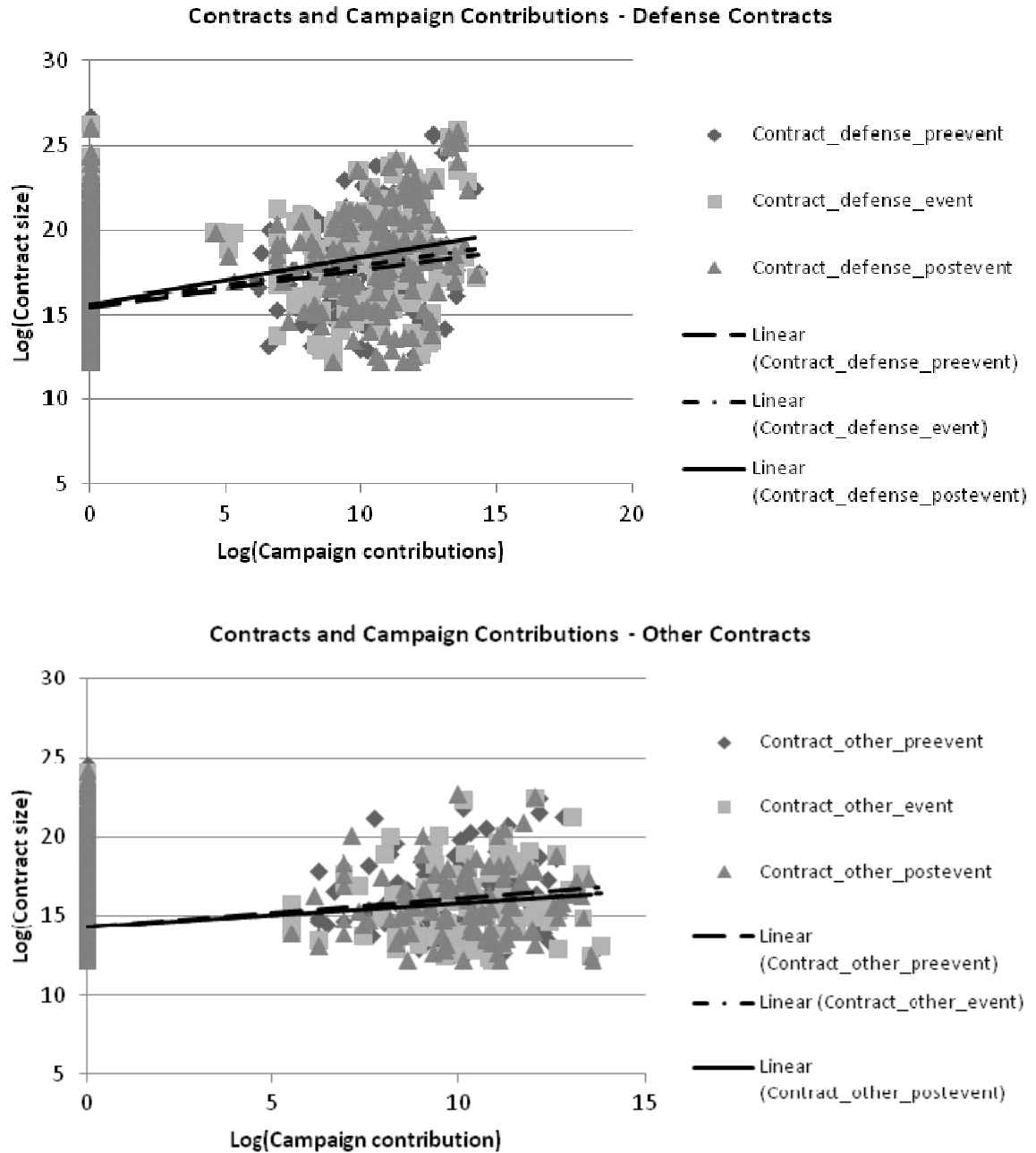
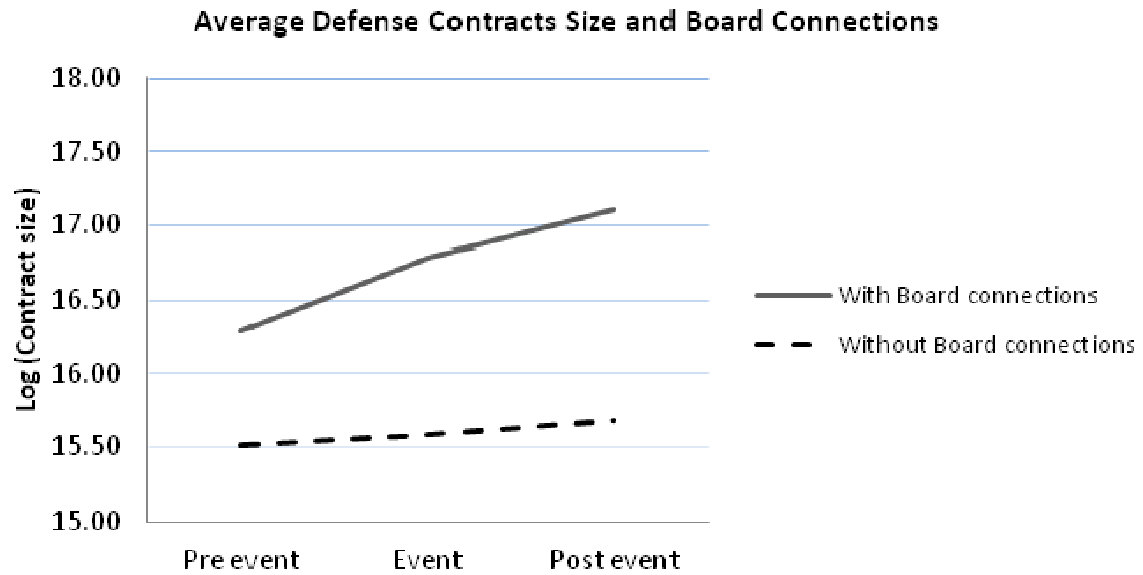
Figure 3. Campaign Contributions and Federal Contracts

Figure 3 – continued



Notes: Natural logarithm of campaign contribution amount is used to calculate campaign contributions. First figure shows average campaign contribution of firms in defense contract and other contract samples. Second and third figures show average federal contract size for firms with and without campaign contributions. Fourth and fifth figures are scatter plots of the relation between contract size and campaign contributions for defense contract and other contract samples, respectively.

Figure 4. Board Connections and Federal Contracts

Notes: This figure shows average defense contract size for firms with and without board connections. A company is considered to have board connection if there is a board of director that has employment history in the armed forces, or has worked with a director in another board that has employment in defense.

Appendix Table. Pair-wise correlations

Panel A: All Sample			
	Contract size	Lobbying	Campaign contributions
Lobbying	0.15	1.00	
Campaign	0.12	0.38	1.00
Board connection	0.06	0.08	0.09

Panel B: Defense Contracts			
	Contract size	Lobbying	Campaign contributions
Lobbying	0.15	1.00	
Campaign	0.14	0.45	1.00
Board connection	0.05	0.10	0.10

Panel C: Other Contracts			
	Contract size	Lobbying	
Lobbying	0.13	1.00	
Campaign	0.07	0.28	